

Dr hab. n. o zdr. Sabina Krupa, prof. UR
Kolegium Nauk Medycznych
Instytut Nauk Medycznych
Uniwersytet Rzeszowski
ul. Warzywna 1a, 35-310 Rzeszów
Budynek G4, pokój 214, 216



Review
thesis for doctoral degree in Health Sciences

Grażyny Suchodolska, MNSc

titled:

Assessment of the utility of mobile application for monitoring adverse effects of therapy and its impact on the satisfaction of patients treated with chemotherapy for breast cancer

The topic discussed in this thesis is very important. Breast cancer is a heterogenous disease and its treatment should be carried out in dedicated breast centres and provided by multidisciplinary specialised teams, including medical oncologists, breast surgeons, radiation oncologists, breast radiologists, breast pathologists and breast nurses. Additionally, patients should have access to plastic surgeons, psychologists, physiotherapists and genetic counselling when appropriate. Breast cancer treatment strategy depends on factors such as: tumour size and location, number of lesions, extent of lymph node involvement, biology of cancer, general health of the patient, their menopausal status and age.

The doctoral dissertation presented to me for review consists of 71 typewritten pages and has a typical doctoral thesis layout. The dissertation begins with a list of used abbreviations and a summary, followed by an extensive Introduction that introduces the reader to the scope of research described in the dissertation. After the Introduction, the PhD student posted the Purpose of the work, and then Description of publications included in the doctoral thesis.

To explore the topic and identify literature providing information on development and use of mobile applications for adult patients undergoing chemotherapy for early stage breast cancer, PhD student made a literature review in the article titled: *Mobile applications for early breast cancer chemotherapy-related symptoms reporting and management: a scoping review*. Article has a high score: IF 11.8 and MNiSW 140 points.

As a student deducate, professional interventions identified within reviewed reseach included: immediate automatic self-care advice and instructions for patients to aleviate reported symptoms, automatic alerts to the care team in response to severe symptoms reports, unlimited access to various educational resources and interactive expert forums.

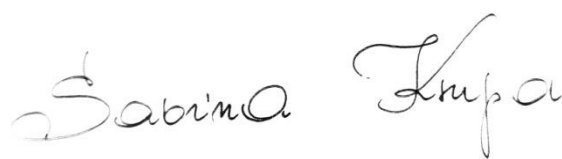
Four out of six mobile applications recognised in this review demonstrated interventional value for management of chemotherapy-related side effects. Study participants randomised to intervention groups testing mobile apps including Consilium, Interactor, mPRO Mamma and Mseptom not only had better QoL, but also experienced lower symptom prevalence and symptom burden, comparing with participants in control groups receiving standard care alone. No significant differences were observed in studies assessing Breast Cancer Patient Support System and Mobile Breast Cancer e-Support Program. In conclusion PhD student stated that further work to refine optimal strategies for engaging not only patients, but also healthcare professionals in adopting digital technology to improve cancer care should be considered. Number of studies have demonstrated feasibility and benefits of using mobile applications to enhance symptom monitoring during cancer treatment, although some of the studies were possibly underpowered to detect some clinically meaningful differences. Only six applications dedicated to patients undergoing chemotherapy for early breast cancer were identified in this review. More research is needed to validate these resources, ensuring effectiveness and safety for their users

Second article, which is the part of doctoral thesis titled: *Are all societies ready for digital tools? Feasibility study on the use of mobile application in Polish early breast cancer patients treated with perioperative chemotherapy*, has a points: IF 2.8 and MNiSW 40. The primary objective of the study was to analyse the results of using the questionnaire, contained within the Centrum Chorób Piersi UCK mobile app, to assess and monitor chemotherapy-related symptoms in patients treated for early-stage breast cancer. The results show how important subject was raised by the PhD student. In conclusion the student stated that although successful use of ePROMs for monitoring treatment-related adverse events has been described in many settings, the results of this study suggest a possible lack of trust and/or understanding of eHealth tools among Polish patients treated for early-stage breast cancer. Our findings suggest that patients older than 60 years of age find it difficult to engage with mobile technology and eHealth solutions. On the other hand, this is the population that, according to our research, is at a higher risk of experiencing not only cancer-related fatigue, but also other problems caused by the treatment. To improve patient engagement and understanding of eHealth solutions, it is essential that patients are invited to and involved in the fundamental stages of creating innovative app-based interventions. With age being a significant factor in determining the number of problems experienced during chemotherapy, we suggest that additional support be provided to older patients to enhance their awareness of the beneficiary potential of eHealth interventions. More research involving older participants is needed to explore and address their particular needs and perspectives on eHealth solutions.

My comment concerns the issue of conducting future research on a larger number of patients and comparing the results between different voivodeships or cities. It should be emphasized that an additional advantage of the thesis is that it was written in English, which is not the doctoral student's native language.

Taking up such an important topic, the high substantive level of the work and the ability to use scientific techniques allow me to state that the assessed dissertation meets the conditions required to apply for the degree of doctor of health sciences.

Due to the above, I conclude that the work submitted for review meets these criteria I submit all statutory requirements for doctoral dissertations to the High Council of the Medical University of Gdańsk for admission MSc. Grażyna Suchodolska, to the next stages of the doctoral proces.

A handwritten signature in cursive script, reading "Sabina Krupa". The letters are fluid and connected, with a prominent flourish on the 'K' in Krupa.

Dr hab. n. o zdr. Sabina Krupa, prof. UR